

**ABSTRACT**

[0097] A method and apparatus is disclosed for automated on-the-fly dispensing of reagents. The apparatus includes a detachable reagent dispensing module supported by a support frame. The dispensing module includes a self-contained pressurized fluid delivery subsystem that facilitates efficient attachment and detachment of the module, including pressurized reagent containers and associated accessories arranged such that each reagent container has a discrete fluid path terminating at a corresponding discrete reagent dispensing tip. The dispensing tips are supported in a common dispensing head, and are arranged geometrically such that the centers of the dispensing tips are separated by distances corresponding to relevant dimensions of particular assay plates to be used therewith. Such a geometric arrangement allows for dispensing of multiple reagents substantially simultaneously into multiple corresponding target wells of the assay plate, efficiently and precisely.